

UNIT – IV

8. Differentiate tuple and domain relational calculus.  
What is meant by safe expression in relational calculus? Give an example ?
9. What is query optimization? Discuss the significance and different steps followed during query optimization.

Roll No. ....

97671

BCA 3rd Semester (New)  
Examination – November, 2017  
INTRODUCTION TO DATABASE SYSTEM

Paper : BCA-203

Time : Three Hours ] [ Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper.  
No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all. Question No. 1 is compulsory. In addition to compulsory question, attempt four more questions selecting one question from each Unit.

1. Compulsory question :

- (a) Differentiate file system and DBMS.  
(b) Name the five components of DBMS environment and how they relate to each other ?

- (c) What is mapping? Why it is necessary in DBMS architecture ?
- (d) Differentiate record-based and object-based data models.
- (e) What is the degree of relationship ? Give example also.
- (f) Discuss the properties of a relation.
- (g) Show that if a relational database is in BCNF, then it is also in 3NF.
- (h) What is query processing ? What are the typical phases of query processing ?

#### UNIT - I

2. (a) What does defining, manipulating, sharing, maintaining and protecting of a database means ?
- (b) Discuss different languages used in DBMS for storage, manipulation and querying of data.

3. (a) Discuss the capabilities that should be provided by a DBMS.
- (b) What are different types of database end users ?  
Discuss the main activities of each.

#### UNIT - II

4. Differentiate two-tier and three-tier client-server architecture with diagram and how three-tier architecture is appropriate for web applications ?
5. What are the different ways of classifying a DBMS ?

#### UNIT - III

6. Explain alternatives for specifying structural constraints on relationship types. What are the advantages and disadvantages of each ?
7. (a) Discuss entity integrity and referential integrity constraints. Why is each considered important ?
- (b) What are the reasons that lead to the occurrence of null values in relation ?